

# ABSTRACT - DEMOGRAPHIC DETERMINANTS OF EXPOSURE TO HAZARD IN FOODS IN ISRAEL

Rachel Raanan, *The Hebrew University, Israel*,  
Prof. Elliot Berry, *The Hebrew University, Israel*,  
Prof. Ya'acov Ritov, *The Hebrew University, Israel*,  
Dr. John Young, *USA*.

**Background and Aims:** Effectively addressing exposures to hazardous substances in foods, including pesticides residues and other environmental contaminants, requires accurate information on the diets of individuals, which vary widely. Aggregating consumption data across a population can obscure different patterns of diet and of corresponding dietary risk. Neither the central tendency nor the extreme values of the overall population are likely to be representative for members of the subgroups comprising that population.

In the development of the latest generation of probabilistic dietary exposure assessment models, a need was identified to replace a priori groupings with an analysis of the demographic factors that actually distinguish between dietary consumption patterns.

**Methods:** Our study population included 3,246 Arabs and Jews, from a representative sample of Israeli adults. An extended set of statistical tools, including innovative data mining tools, allowed characterization of the natural sub populations.

**Results:** The most important drivers of consumption patterns were not consistent with previously defined subgroups. For example, season was found to be a more important determinant of the amount of fresh (unprocessed) vegetables and fruit eaten than region, nationality (Jews and Arabs), ethnicity, or sex, despite the year-round availability of many, if not most, foods.

**Conclusion:** A natural binning of population, for exposure to environmental contaminants reveals different binning than traditionally believed. This contributes to a more accurate risk assessment of environmental contaminants in Israel.

**Keywords:** environmental exposure assessment, dietary patterning, sensitive subpopulations, pesticides, contaminants.